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A TALK WITH "WIRELESS WEEKLY."
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The day of the organised amateur has arrived.

It says a lot for the rapid advancement of the experimental side of the science, as far as the amateur is concerned, to assert that the experimenters of New South Wales speak with one voice. But this is the case.

The new Radio Regulations that we hear so much about should have been issued weeks ago. They did not make their appearance, and the amateurs of New South Wales wanted to know why. So the Secretary of the newly-formed branch of the Radio Association of Australia got busy.

Telegrams were sent to the Authorities and Members of Parliament, with the result that Major Marr asked the Prime

Minister in the House of Representatives when the Regulations would be issued. This was during the latter part of last week, and as Mr. Hughes replied that they would be available in about a week, the public may see them at any time now. If there is any more delay, the experimenters of New South Wales will want to know why again, and the question will be put through the central body.

Here we have a sample of the value of an efficient organisation. It was only a year or so ago that there were but very few Radio organisations, and experimenters, though they growled incessantly among themselves, did not get their voices to the right quarter.

However, certain incidents contributed toward the rapid ad-

vancement of the science in an amateur sense, and clubs sprang into being. Live men rose to the head of affairs, and the various bodies have united to present an unbroken front to anybody who attempts to interfere with their rights.

There is no doubt that this is the only way for the experimenters to secure efficient protection. This journal has constantly urged the value of organisation.

New South Wales has set the example with the formation of the Radio Association of Australia (N.S.W. Section). It is up to the other States to get their sections going, so that a Central Council may be formed.

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Our Competition Result.

The "Wireless Weekly" competition for the best photograph and description of valve and crystal set did not bring forth the support anticipated.

The crystal class, in fact, was supported so poorly that it was decided to abandon it, and award the prize to the two best valve sets.

The first prize goes to Mr. H. S. Beattie, Bishop Street, Box Hill, Victoria.

The second prize has been awarded to Mr. D. K. Sidey, Highfield Road, Lindfield.

Mr. Beattie's set, which is shown on the front page of this issue, is described by him as follows:—

The set is of the cabinet design, measuring 4ft. by 2ft. 6in. by 18in. deep, made from polished cedar with six ebonite panels.

On the top of the cabinet there are seven valves which can be used for three radio, one detector and two of audio, to three radio, one detector and three step resistance cascade, by means of throw over switches. The tuning is effected with duolateral coils, ranging from 600 metres to 25,000 metres. The variable condensers are of the "expansion" panel type. All the interval transformers, as well as the A and B batteries, are enclosed within the cabinet. The A batteries consist of two Edison nickel steel batteries of 6.5 volts each. The B battery is made up from 40 flashlight cells, giving a total voltage of 160.

Above the set is mounted a loud speaker, while, on the right is the mercury arc rectifier, for charging the batteries.

The valves are V24's for audio or resistance amplification, while R type valves are used for radio frequency, and the detector is a QX. The 'phones are Brown's 8000 ohms.

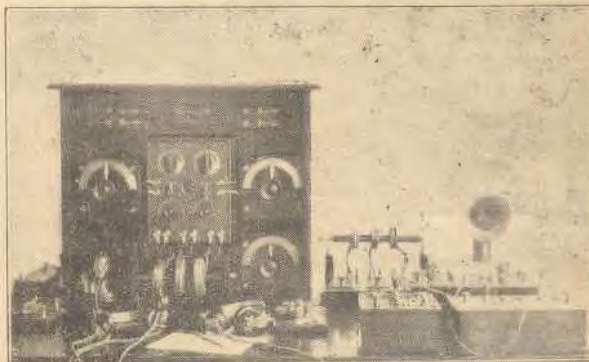
The set can be operated on several "hook ups," by means of change over switches. The aerial consists of four sausages 50 feet long supported on a mast of 80 feet, all insulated to permit of direction finding with goniometer.

All the high power stations have

been heard with wonderful clearness, and last, but not least, Mr. MacLurcan's Sunday night concerts are surprisingly loud.

The set is about to be fitted with the object of listening for the American amateurs on 250 to 300 metres. At each end of the cabinet a door is provided to permit easy access to the batteries transformers and wiring.

Mr. Sidey's set is also a splendid one, and the results he has obtained prove that there is nothing wrong with it. His description is as follows:—



Mr. D. K. Sidey's Set which Won the Second Prize.

A (in large cabinet): Aerial honeycomb inductance coil, with variable condenser in parallel; secondary honeycomb inductance coil, with variable condenser in parallel; tickler honeycomb inductance coil, with variable condenser in parallel; three double pole double throw knife switches, throwing from one set of coils to another.

B (in small cabinet within large cabinet): Switch, to cut in and out the coupling condenser; switch, to cut in and out connection between plate (through tickler coil) and filament end of secondary coil; grid condenser and leak, variable fan switch type; bridging condenser

(round 'phones and B battery), variable fan switch type; coupling condenser (variable), grid side of grid condenser to negative of filament; filament rheostat; audio-iron valve, six volts, filament, 28 volts plate.

C (two-stage audio amplifier cabinet): Transformer No. 1, step up 4000 to 16,000 turns, No. 40 D.S.C. copper wire; transformer No. 2, step up 4000 to 17,500 turns of No. 40 D.S.C. copper wire, secondary in parallel with fixed condenser .01 M.F.; two oscillation valves, four volts filament, 32-44 volts plate.

D: Two cabinets of H batteries, with plugs and sockets for variation of plate voltages.

E: Loud speaker, Brown's 'phone 4000 ohms resistance, in tube with funnel for sound delivery.

F: Aerial, twin inverted L, four wires, No. 14 copper, spread six feet, length 140 feet, average height 55 feet.

—◆—

Keep your earth lead as short as possible. This applies to aerial down leads as well.

MODULATION.

When the three-electrode audion or vacuum tube, the invention that made radio telephony possible, came into being in 1912, it set working the mental machinery of Reginald A. Heising, a young physicist working for a degree as Master of Science in the University of Wisconsin.

"If I could put into a vacuum tube the amount of energy produced by the voice and get it out many times amplified in the form of high-frequency power in an antenna, what an advance it would be," thought this young scientist.

Armed with his degree he went to work on this problem in the research laboratories of the Bell

System, operated by the Western Electric Company. Six weeks after he started, his first patent establishing the basic principle of the Heising modulation system was applied for. Since that time he has been engaged in perfecting the discovery. How well he has solved the problem was proved by the award in 1921 to him of the Morris Liebmann Memorial prize by the Institute of Radio Engineers. This is the highest tribute which the radio fraternity can bestow upon a fellow scientist.

In the communication field today the Heising system of modulation is a fundamental law and the young inventor whose work in research brought it about holds an enviable position in the world of scientific achievement.

MARCONI SPEAKS ON STATIC PROBLEM

In the course of a lecture to an American audience, recently, Marconi spoke about static as follows:—

"During my present journey across the Atlantic on board the Yacht Elettra, we noticed that up to about half way across (apart from the effects of local storms, static interference appeared to be coming mainly from the European and African continents, while at more than half way across they were coming from westerly directions, that is, from the American continent.

The changing over of the direction of origin of these disturbances has also been noted under similar circumstances by Mr. Tremellen in crossing the Pacific.

The protection of receivers against the troubles of atmospheric or static can only be, and is likely to continue to be, a relative matter, as it is quite obvious that a static eliminator under certain conditions will cease to be effective, where the static arrives with much greater intensity than had been anticipated, and will also frequently fail when, in consequence of the weakness of the received signals, amplification has to be increased to any considerable extent."

By means of suitable electron tubes or valves, it is now quite practicable to produce waves from about 12 meters and upward utilizing a power of several kilowatts, and it is also practicable to utilize valves in parallel.

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MAKE YOUR OWN.

LOOP AERIAL.

For those who contemplate the construction of a loop aerial, the following instructions should be of value. This loop is designed to fold up for convenience in carrying.

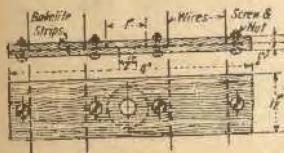


FIG 1

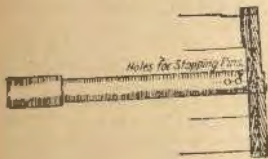


FIG 2



FIG 3

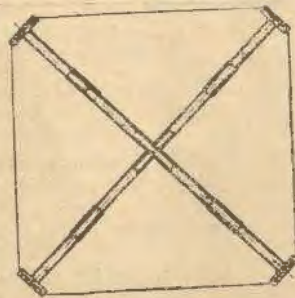
It consists of eight pieces of round stick one inch in diameter, four of them being 18 inches long, and provided at one end with a piece of brass tubing into which they fit tightly. A small nail is passed through both to prevent the tubing from sliding back.

Three other sticks 18 1/2 ins. long should be turned down to 1/2 in. over a length of 1/2 in. Another stick 19 ins. long should be pro-

vided with small holes beginning 1/2 in. from one end and spaced 1/2 in. from each other. In each of these holes a pin or nail may be pushed to adjust the tension of the wires in the loop and also to permit the erection of the frame and the mounting of the winding.

In the centre where the two arms of the frame meet, a cross-piece of brass tubing supports the sticks. This cross-piece may easily be made by soldering three lengths of tubes together, if it is not possible to buy it ready made.

To obtain best results with a loop aerial, for the reception of short wave-lengths, the wire should be wound with a space of about 1 inch between the turns. In order to keep this spacing and at the same time to permit the rapid removal of the complete winding, the following scheme was devised: The wire is clamped at each corner of the loop between two strips of bakelite or other insulating material, so that the complete winding may be folded to occupy little space and at the same time to retain its shape.



COMPLETED LOOP

The size of the bakelite strips is shown in Fig. 1. Five strips should be provided with a 1 inch

hole in the centre so as to pass over the ends of support sticks and three with a 1/2 inch hole in order to stop the end pieces and maintain them in the proper position.

At three of the corners of the loop the bakelite strips supporting the winding are stopped by the small piece provided at the end of the sticks, while at the fourth corner the strips may slide down along the stick. When the first three pieces are in place, the fourth is pushed up to the end of the stick provided with holes, and the pin is pushed through one of these to obtain the proper tension of the wire, and keep the bakelite end pieces in place, as shown in Fig. 2.

The insulating strips are screws and nuts, when the wire has been set in place. On one of the end pieces two of the screws should be replaced by small hindering posts.

The best wire to use for the winding of the loop is flexible stranded conductor of small diameter, which may easily be rolled around a piece of cardboard without breaking, as stiff wire would. The easiest way to wind the loop before clamping it, is to set up the frame first and prepare the necessary bakelite strips and screws; the end piece sliding along one of the sticks is stopped by the pin inserted in the hole nearest to the centre.

Only two of the screws fixing the strips together should be set in on one side, loosely enough to enable the wire to be inserted between the strips on the other side as shown in Fig. 3. When two turns are made on one side, the two screws are mounted in their holes and the others removed to permit the winding of the two other turns, the wire being properly spaced and adjusted when the four turns are all in place.

“CONGRATULATIONS.”

New Radio Association.

The Constitutional Sub-Committee appointed by the Council of the Association met at the club rooms of the North Sydney Radio Club on Monday last, to frame the rules and by-laws of the association.

Mr. Hewitt occupied the chair. Messrs. Marsden, Atkinson, and Mingay were present. Mr. Best was absent, due to illness.

The whole of the proposed rules and by-laws were discussed, and it was resolved that they be placed before the next meeting of the council to be held on Tuesday, 24th instant, at the Protestant Hall, Room No. 3, Castlereagh Street (opp. Fire Station), commencing 7.45 p.m.

The hon. secretary (pro tem), Mr. O. F. Mingay, acting under instructions from the executive, despatched telegrams to the Secretary to the Prime Minister's Department, Major C. W. C. Marr, M.P., and Mr. Brennan, asking their support in having the amended regulations made public as soon as possible.

Major Marr took immediate steps to have a question asked in the House, and the Prime Minister announced that the regulations would be amended this week. It is hoped that same will be announced before this paper appears off the Press.

The secretary further announces receipt of a letter from Mr. Malone, Controller of Wireless, Melbourne, which states: "I desire to thank you for your telegram and memorandum relative to the formation of the Radio Association of Australia, and to forward my congratulations on this very important step taken by the wireless enthusiasts of Sydney. I am sure it will turn towards obtaining harmonious relations in all wireless activities, and assist in the maintenances of desirable wireless discipline, and will also enable the controlling authorities to be able to discuss questions of mutual interest with a recognised responsible body.

"I am glad to know that you are in touch with Mr. Crawford, who will represent my views, and with whom I will be glad if you will dis-

cuss the question of honorary inspectors.

"Action has already been taken to arrange for a supply of application forms for licences to be available at various places in addition to this office. These forms will be available when the new regulations are printed. Owing to the congested state of Parliamentary Works recently it has been impossible to have the regulations approved, but I am confidently expecting to have them through this week. The idea suggested to Mr. Malone was that at least six honorary radio inspectors would be needed, and on further discussion by the committee on Monday last it would appear that about twelve will be necessary. This all hinges on the power to be given these honorary inspectors.

The Council of the Association wish it to be thoroughly understood that the association will see that the regulations are strictly adhered to, and if found necessary (which it is hoped will not be), a very severe and drastic action will be taken against any offender.

In the interests of the amateurs generally, every licence holder must see that no person operates a radio set unless he has a licence.

The secretary can be communicated with by letter to Box 734, G.P.O., or private phone Wah. 733.

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The U.S. Navy Department is revising the whole of its system of high powered arc stations, and intends to eliminate the "back kick" and as many harmonics as possible. The Department is watching the development of the transmitting valve, especially since the General Electric Co. have brought out a 20-K.W. tube.

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October 20th, 1922

WIRELESS WEEKLY

7

Our
Radio
Yarn

The Abenger.

By
C.O.

On the wharf of the delightful little island of St. Helena, which is Brisbane's penal settlement, was a small group of men leading a trolley. It was a sweltering day, and the few trippers on the steamer gazed sympathetically at the four sun-browned prisoners who were stuffing heavy bags, and who seemed unwilling to raise their eyes from the task.

One young man in particular, Gregory Marshall, worked fiercely as if by straining himself to the uttermost he could relieve the ferment that was within him.

He had been sentenced to two years' imprisonment for forgery, another man's crime—and his sole thought was to "get" the man for whose sin he was suffering. He had been foolish and stubborn, perhaps, at the trial and his repeated statement that the wealthy and prominent Dudley Slater was the guilty one, had been ridiculed in Court. Dudley Slater was now in Sydney, a great public man.

At last the trolley was loaded, and with the three other prisoners, Gregory started to push it along the winding track towards the gaol, some hundred of yards away.

Suddenly he bent forward, his eyes fixed on the newspaper wrapping of one of the parcels on the trolley, and in large print he saw the hated name, Dudley Slater. The print seemed blurred for a moment, but presently he was able to read that Dudley Slater had been appointed to represent a large commercial interest in America, and would sail on the eighteenth of that month.

The eighteenth! It was now the twelfth, and the fact that Slater was leaving the country seemed to damp all Gregory's hopes of ever obtaining redress, and clearing himself of the awful stigma of crime.

He straightened up, and glanced round at the solitary warder walking silently behind the little party. He noticed that man was stumbling and reeling along rather than walking. Speaking quietly to his

companions, Gregory stopped and found that the warder was overcome by the heat, and was on the point of collapse. The men assisted him on the trolley, and hastened him to the gaol precincts. There was some slight commotion as they arrived within the gates, and during this, Gregory quietly slipped outside.

A few moments afterwards, he was lying concealed behind a bush.

The next few hours passed almost like a dream to Gregory, and he could never clearly recollect afterwards how he got down to the wharf, plunged into the water, and swam to a large ship moored in the Bay, through the shark-infested waters.

On board the *Sea Wind*, next morning, all was bustle, for the steamer was leaving for Sydney at daylight. The wireless operator, a pale, highly strung fellow, was pacing up and down outside the wireless room, utterly unconscious that a few yards away, in one of the lifeboats, was concealed a man who had a number branded on the back of his coat.

The chief officer passed just then, and the rather nervous "good morning!" given him by Wireless Operator Greaves, was answered by a sarcastic smile. Greaves was very unpopular on the ship, and was usually referred to as "Girlic" because of his slight physique, and marked disinclination to join in any sports or games of any kind. He was always being misunderstood, and was treated with contempt by most of his shipmates.

Greaves turned into the operating room and sent off the few messages which the Captain had given him, and then settled wearily down to his "listening in."

A shadow fell across the doorway, and the next moment in stepped Gregory, who, with a swift movement, shut the door behind him.

"I am staking my whole future on the hope that you are a sport, brother," said Gregory to Greaves, who had not moved in

his chair. "I want you to give me a fair hearing before you decide to create any disturbance, and if you are a man at all, you will help me."

Greaves was unable to speak, not from fear, but because of an intense feeling that here, at least, was one who gave him credit for being a man.

Suppose he should summon help, and then rush at the man standing at the door. One of the officers would come to his assistance before much damage could be done, and he might then be considered something in the light of a hero for tackling such a big opponent.

Greaves decided to give Gregory a chance, and he found himself absorbed in the story of injustice which was unfolded. He began to plan how to get hold of Slater and force a confession from him, but the task seemed hopeless. Hearing footsteps along the deck, he motioned to Gregory to conceal himself in the little cabin beyond.

Idly listening in, Greaves heard his call letters, and was soon listening to a message from Brisbane Radio Station, telling of the escape of a prisoner from St. Helena, and asking if anything had been seen of him by the *Sea Wind*.

Instead of replying to the question, he closed down, and ignored it. Some hours later, he called up the Sydney Station and sent a message to be delivered to Slater, telling him to meet the *Sea Wind* on her arrival in Sydney, on important business. It was only a chance that Slater would do this, but Greaves could not think of any better plan, and circumstances would dictate the next move.

Gregory was carefully concealed until the vessel reached Sydney, and Greaves looked eagerly on the wharf after the vessel was tied up, seeking someone who would answer the careful description given of Slater. He fixed on his

man, and descending the gangway, had a few words with him, saying that he was urgently required in the wireless room.

Slater followed Greaves up to the wireless room, and once inside, Greaves slammed and locked the door, putting the key in his pocket. Before Slater had time to say anything Gregory appeared, and pointing a revolver which he had found in a drawer, at Slater's head, demanded and obtained a full confession of the forgery, in the presence of Greaves. Greaves then accompanied Gregory ashore, and they went straight to police headquarters and made a clean breast of the whole affair.

Gregory thus had his name cleared, while Slater suffered a great downfall.

Greaves was transferred to another ship, and there was something in his bearing, which forever removed the title of "Girllie."

EAGLE EYE.

Fighting Forest Fires.

High overhead an airplane, circling like a tiny speck against the sky. Far below a wisp of smoke.

The drone of a radio spark, the jangle of a land telephone bell, the quick haste of a forest ranger hurrying toward the danger spot.

This is the way Uncle Sam guards the forest reserves of the country whose value runs into millions of dollars. The combination of air patrol, radio, telephone and ranger has already saved untold wealth in timber land.

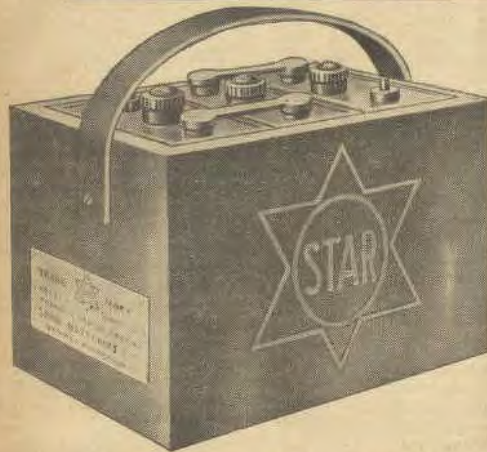
To the eagle eye—aerial observer in the government plane—is given the task of watching for smoke wisps that spell trouble. Cruising high overhead, with the tree-land laid out far below, he catches instantly the grey patch that indicates a blaze. It may be

a carefully guarded camp fire, or again it may be the beginning of a conflagration.

In any case, the observer touches the key of his radio set, high in air, 800 feet or more above ground. Miles away in a listening ground station his code is picked up by a waiting and ever listening ground operator. Beside the latter's elbow is a telephone whose wire touches the nearest station of rangers in that area.

When the radio warning comes, the ground operator telephones the rangers. A forest patrol guard starts off as fast as horse flesh will carry him for the spot. If it proves to be a forest fire, at least it will not have much of a start, and in this lies the possibility of control—the quick mobilization of fire fighters who know their business. To these men, operating with the aerial radio patrol, Uncle Sam owes the safety of his timber lands.

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Sydney.

ART OF TUNING. THE RADIO RECEIVER.

(By O. F. MINGAY, Member of the Wireless Institute of Aust.)

The best results in the tuning of a Radio Receiver are obtained by the controlling person understanding in a general way what each control does, and further to use the controls in a systematic and not haphazard manner.

It is not necessary to know the theory of gas engines to drive a motor car, but the driver must certainly understand the function of each control, and manipulate the car in an intelligent manner. The more he knows, the better he is able to drive, and the less danger is he to himself and to the public.

So is it with the Radio Receiver, an understanding of the general principles of the set and its controls is very necessary, in order to obtain good results consistently.

Let us assume that the apparatus is made along lines of general accepted practice, and connected in one of the many standard ways. Then we can assume that the aerial is sufficiently high, not too short or low, is well insulated, and as clear of surrounding buildings and trees as is possible; that the ground connection is a good one, and all joints are soldered; that all connections, both in and outside the set are good, and the batteries in good condition.

The most important factor in radio reception, is a thoroughly reliable piece of apparatus, capable of rendering efficient service day after day, without vexatious delays, through hunting for troubles and correcting them.

Tuning, as indicated in this article, is the process of adjustment of receiving apparatus to accord with a particular transmitting station, in order to obtain the greatest response to that station's waves.

The electromagnetic waves, transmitted by a radio sending station, are distributed in all directions into space. These waves get weaker, the greater the distance they travel. When a wire

or any conductor, is elevated above the surface of the earth, it is struck by the passing radio waves. These waves are really moving electric forces, and when they strike a wire, they cause it to move, electrically, just as a water wave causes any object to move when placed in its path.

The tuning of the aerial is for the simple purpose of so adjusting the aerial wire that it can vibrate electrically with the greatest efficiency, under the force applied to it by the radio wave. One important thing to note about these radio waves travelling through space, is that they have a definite frequency, or, in other words, a certain number of them pass the receiving aerial in one second. The number of such waves passing the aerial in a given time is determined by the adjustment of the transmitting station.

Since these waves travel at a certain speed, they must be a certain distance apart, and this distance is called "Wavelength." The usual term in radio work is to say that a station sends out waves of 600 metres (French measurement), but we could just as easily refer to it as sending out 500,000 waves per second. These incoming waves strike the aerial wires regularly and evenly one after another, and it is desired that they cause the aerial to vibrate as much as possible.

(To be continued.)



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EMPIRE WIRELESS.

PROPOSED BRITISH STATION.

The new transmitting station which the British Government proposes to erect at Bourne, near Spalding, Lincolnshire, for direct wireless communication with India, South Africa, and Australia, and later with Canada and other parts of the Empire, will surpass in magnitude anything of the kind hitherto constructed in England.

While it will not equal in actual size the new French station at Saint-Assise (near the Forest of Fontainebleau), the varying functions of the respective stations have to be borne in mind, the one being for general and commercial purposes, the other primarily for official purposes.

There will be, at the English station, eight steel masts, each 800 feet high. These masts support the antennae, and constitute the most costly item of a wireless station. The masts will be arranged in the form of a square, in the centre of which the transmitting station will be situated.

The apparatus will consist of thermionic valve sets capable of transmitting continuously at 90 words a minute for reception in Poona, Johannesburg, or Perth, as the case may be.

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October 20th, 1922

WIRELESS WEEKLY

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WAVERLEY AMATEUR RADIO CLUB

The last meeting of the Waverley Amateur Radio Club, it was decided to endorse the action of its delegates to the Wireless Association, which was that the Club would join up with the Central Council, in view of the fact that other proposals had collapsed.

The Club was asked to assist a new club, being formed at Tamworth, N.S.W., by lending its rules for perusal. It was decided to assist the Tamworth Club as far as possible.

Mr. Alan Burrows, who has been Secretary of the Waverley Club for over twelve months, has resigned that position. Mr. Frank Harvey, of Waverley, is now Secretary.

NORTH SYDNEY RADIO CLUB.

The last general meeting of the North Sydney Radio Club, held on Tuesday, the 10th inst., was exceptionally well attended, and a number of important matters were brought forward for discussion.

The report of the delegates to the Australian Association Radio Clubs was submitted, and it was unanimously decided to support and fully co-operate with the other clubs in the formation of this body, Mr. J. O'Brien being appointed as delegate for the ensuing term.

A feature of the evening was the admission into the club of their first lady member, Miss Pitcairn, who is well-known locally as a great enthusiast in all branches of radio work.

Work upon the club's apparatus is progressing rapidly, and, it is stated, they hope very soon to be able to compete with some of Sydney's foremost amateur stations.

The next meeting will be held on Tuesday, the 24th inst., at the Club's premises, corner Alfred and High Streets, N.S., at 8 p.m., and all intending members are invited to be present.

LEICHHARDT AND DISTRICT RADIO SOCIETY.

A large number of local enthusiasts assembled at No. 3 Annesley Street, Leichhardt, on Tuesday, October 10th, for the purpose of forming a local Radio Club.

After lengthy discussion, Rules and Regulations were draughted and adopted, and the following office-bearers elected:—President, Mr. L. Morrison; Vice-Presidents, Messrs. Bird and Ross; Hon. Treasurer and Asst. Hon. Secretary, Mr. W. Bird; Hon. Secretary, Mr. W. J. Zech; Councillors, Messrs. Cantrell, Harrington, Kirkpatrick, and Harrison. The next meeting is to be held at 8 p.m., on Tuesday next, the 24th inst., at No. 3 Annesley Street, Leichhardt, when all interested are invited to attend.

All inquiries should be addressed to the Hon. Secretary, Mr. W. J. Zech, 145 Booth Street, Annandale.

WIRELESS INSTITUTE, QUEENSLAND.

Steady progress is the present slogan of the Wireless Institute of Queensland.

The weekly lecture, recently delivered by Mr. G. Chilton, Officer-in-Charge of the Pinkenba Wireless Station, on the subject of wireless telegraphy and radio-telephony. The hall was packed long before the commencement of the address, and a goodly number of the fair sex were present, mainly to hear the radiophone. The lecture was made fairly simple in order that the majority of the audience, who were mostly beginners, would be able to follow the lecturer.

At the conclusion of the lecture, Mr. W. Finney, president, drew attention to the fact that Mr. Chilton would be leaving shortly for Sydney, where he has accepted the position of Officer-in-Charge of V.I.B.

The radiophone was then started, and the music, speech, etc. was clearly heard on a small aerial in the lecture room. The rush for application forms for membership which followed soon exhausted the supply, which the Secretary (Mr. L. O. Kerlin) had brought with him for the occasion.

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